

CATEGORICAL EXCLUSION WORKSHEET: RESOURCE CONSIDERATIONS

Water Resources

Crane Point Project- North Fork Ranger District Nez Perce-Clearwater National Forests

Description of the Proposed Action

The Palouse Ranger District of the Nez Perce-Clearwater National Forests is proposing to implement the Crane Point project. Proposed vegetation treatments include: 701 acres of commercial timber harvest (622 acres of regeneration and 79 acres of commercial thinning); 20 acres of Old Growth enhancement; and 241 acres of non-commercial fuels treatment. Proposed road and trail treatments include: approximately temporary road, system road maintenance, reconstruction, or improvement; decommissioning user-created trails and legacy roads; and replacing one culvert.

Required Design Features

The following design features are required to ensure compliance with the regulatory framework water resources and/or to reduce the risk of adverse impacts to water resources. A description is provided as to when, where and how the design feature should be applied and/or what conditions would trigger the need to apply the design feature.

FF-1: INFISH Riparian Management Objectives, standards, and guidelines would be applied to protect aquatic resources, to include Riparian Habitat Conservation Areas (RHCA) default buffers. INFISH default buffers are to be used to define timber sale unit boundaries where water features are present. No timber harvest is to occur within 300 feet of fish-bearing streams, 150 feet of perennial non-fish bearing water, 50 feet of intermittent streams, 150-foot slope distance from the edge of wetlands larger than one acre.

***Anticipated Effectiveness:** Clearwater National Forest BMP audits show this measure to be highly effective.*

FF-2: Mapped active stream channels in the Hangman Creek drainage would be buffered with a 150-foot RHCA to ensure that project area stream reaches which may have both intermittent and perennial qualities are adequately protected from potential effects of sediment transmission; this designation is proposed to ensure that project activities have would conserve the upper Hangman "Conservation Population" of redband trout downstream from the project area.

FF-4: Avoid direct ignition of fuels within RHCA's. Allow prescribed fires to back into these areas.

***Anticipated Effectiveness:** Low-intensity prescribed fire and underburning has resulted in incidental mortality of leave-trees; however, mortality is minimal, and often limited to edges or isolated trees.*

SR-8: All temporary roads will be scarified and recontoured (decommissioned). Reshape cut/fill slopes and crossings to natural contours. Apply available slash to the recontour surface (slash is considered available where the equipment is able to reach it from the working area where the decommissioning is occurring).

Anticipated Effectiveness: *Recontouring skid trails is effective for increasing infiltration capacity and reducing runoff (Foltz et al. 2007) and covering rehabilitated trails with at least 50% slash cover will reduce potential surface erosion from trails by up to 90% (Wade et al. 2012, Foltz et al. 2009).*

Existing Condition

The 1,350-acre project area is located within four United States Geological Survey (USGS) Hydrologic Unit Code 12 (HUC 12) subwatersheds (Headwaters Hangman Creek, Deep Creek, Gold Creek, and Meadow Creek) (Figure 1).

Beneficial uses and water quality criteria and standards are identified in the State of Idaho Water Quality Standards and Wastewater Treatment Requirements (IDAPA 58.01.02). Designated Beneficial Uses (IDAPA 58.01.02, Section 130) for Deep Creek, Cold Creek, and Meadow Creek are cold water aquatic life and secondary contact recreation. Designated Beneficial Uses for Headwaters Hangman Creek are cold water aquatic life, salmonid spawning, and secondary contact recreation.

Idaho Department of Environmental Quality (IDEQ) direction is to improve or maintain water quality conditions to support beneficial uses. Hangman Creek, Deep Creek, and Gold Creek are listed as water quality impaired for temperature, sediment, and bacteria in the 2014 IDEQ 303(d)/305(b) Integrated Report (IDEQ 2017), and approved total maximum daily loads (TMDLs) have been developed by IDEQ (IDEQ 2005, IDEQ 2007). No municipal watersheds or source water areas are located within or directly downstream of the project area.

Forest Plan Appendix K water quality standards and maximum allowable percent sediment yield increase over natural conditions criteria for project area streams are presented in Table 1. Existing sediment conditions have not recently been assessed for project area streams, and existing condition percent sediment yields over natural for project area streams, where available as presented in Table 1, are from the Clearwater National Forest Watershed Condition Report (Jones and Murphy 1997). These sediment yields are based on watershed modeling, and indicate that project area streams for drainages that were modeled were meeting Forest Plan percent sediment yield over natural conditions criteria in 1997.

Harvest has not occurred in project area stream drainages since 2009. From 1997 to 2009, 400 acres of harvest occurred in Gold Creek stream drainage, and 1,350 acres of harvest occurred in Meadow Creek stream drainage. Wildfire has not occurred in project area stream drainages since 1995. Prescribed broadcast burning records from 2003 to 2018 show prescribed fire has not occurred in project area stream drainages since 2009. Satellite imagery of these prescribed burn areas show minimal tree mortality, suggesting low burn severity prescribed fire, which would have negligible effects on erosion and sediment delivery. Given the moderate watershed condition ratings for project area stream drainages presented in Table 1, and the lack of wildfire and minimal harvest occurring since 1997, it is reasonable to assume that project area streams are currently meeting Forest Plan water quality standards and percent sediment yield over natural conditions criteria, and have not declined from a moderate watershed condition.

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Table 1. Clearwater Forest Plan water quality standards and criteria, and watershed condition.

Stream	Channel Type	Standard	Max Allowable Sediment Yield Percent Over Natural (ON)			Watershed Condition ¹
			Forest Plan Standard	Existing Condition ¹	Allowable Yrs. in 30 Exceeding Threshold	
Gold Creek	C	Minimum Viable	350%	47%	20	Moderate
Meadow Creek	C	Minimum Viable	350%	ND	20	Moderate
E. Fork Deep Creek ²	C	Minimum Viable	350%	ND	20	Moderate
Hangman Creek ²	B	Minimum Viable	650%	ND	20	Moderate

¹Clearwater National Forest Watershed Condition Report (Jones and Murphy 1997).

²Not included in Forest Plan Appendix K. Water quality standard and maximum allowable percent sediment yield over natural conditions criteria are presumed.

Description of the Spatial and Temporal Bounds used for Effects Analyses

Spatial Boundary

Direct and indirect effect on water quality are assessed for project area streams, and water yield is assessed for project area HUC12 watersheds.

Temporal Boundary

Direct and indirect effects are assessed from the initiation of project implementation through project completion. Harvest and road actions would likely occur within three to four years of project implementation, and prescribed fire could occur up to 10 year from project implementation. Potential effects to water quality would be short-term (three to five years), as vegetation would rapidly re-establish to provide ground cover that minimizes surface runoff and erosion. Potential effects to water yield could be long-term (up to 30 years) as vegetation re-grows to increase canopy cover.

Direct/Indirect Effects

All Crane Point project activities should maintain or improve water quality; therefore, the Crane Point project was designed to produce immeasurable to negligible increases in bacteria, nutrients, oil and grease, inorganics, sediment, or temperature. The project would implement INFISH buffers in Riparian Habitat Conservation Areas (RHCAs); therefore, harvest activities would not alter riparian vegetation, and there would be no decrease in streamside shading that could affect stream temperature.

Road actions include temporary road construction, and system roads reconstruction and reconditioning. Temporary roads would not cross streams or encroach into RHCAs. All reconstructed road surfaces within RHCAs, including stream crossings, would be graveled upon completion of reconstruction, which would reduce current road erosion and sediment delivery to streams at stream crossings, and result in a beneficial effect on water quality. Surface graveling has been shown to be effective at reducing erosion from road surfaces, especially at road-stream crossings, and studies have found gravel reduces sediment

by 70 to 79% (Burroughs and King 1989). One culvert would be replaced, and standard BMPs to minimize erosion and sediment delivery would be implemented. User-created trails and legacy roads would be decommissioned through abandonment or full recontour. Standard BMPs to minimize erosion and sediment delivery would be implemented for full recontour decommissioning.

Proposed harvest and prescribed fire are presented as a percentage of project area HUC 12 subwatersheds in Table 2. As less than 2% of all project area HUC 12 subwatersheds would be affected by proposed activities, direct and indirect effects at this scale would likely be negligible.

Table 2. Proposed Harvest and Prescribed Fire Percent of HUC 12 subwatersheds.

HUC 12 Subwatershed	HUC 12 Area (ac)	Proposed Harvest (ac)	Proposed Prescribed Fire (ac)	Percent HUC 12 Subwatershed
Deep Creek	27,413	109	0	<1%
Gold Creek	18,059	22	26	<1%
Headwaters Hangman Creek	37,374	539	184	<2%
Meadow Creek	25,618	27	28	<1%

The effects of proposed activities on ECA, an indicator of water yield, for Deep Creek, Gold Creek, Headwaters Hangman Creek, and Meadow Creek HUC 12 subwatersheds do not exceed 1% ECA, indicating proposed activities would have a negligible effect on water yield, as approximately 20% percent of the basal area must be removed before a statistically significant change in annual runoff can be detected (Troendle et al. 2009).

The Water Erosion Prediction Project (WEPP) runoff and erosion prediction model (Flanagan and Livingston 1995) was used to estimate average annual hillslope erosion and sediment delivery for proposed harvest units hillslopes and non-commercial prescribed fire units hillslopes. WEPP is a process-based, spatially distributed hydrology and erosion prediction model that predicts runoff, soil erosion, and sediment delivery by considering specific soil, climate, ground cover, and topographic conditions. It was developed by an interagency group of scientists including the U.S. Department of Agriculture's Agricultural Research Service, Forest Service, and Natural Resources Conservation Survey; and the U.S. Department of the Interior's Bureau of Land Management and Geological Survey.

Custom online interfaces to the WEPP model have been developed by the U.S. Forest Service Rocky Mountain Research Station specifically to assist forest land managers in the selection and assessment of site-specific management options. This analysis was performed using the Disturbed WEPP on-line interface (<http://forest.moscowfs.wsu.edu/fswapp/>) (available in project record). At best, any predicted runoff or erosion value would be within plus or minus 50% of the true value. Erosion rates are highly variable, and most models can predict only a single value. Replicated research has shown that observed values vary widely for identical plots, or the same plot from year to year (Elliot et al. 1994; Elliot et al. 1995; Tysdal et al. 1999). Additionally, spatial variability and variability of soil properties add to the complexity of erosion prediction (Robichaud 1996).

WEPP predictions of average annual erosion and sediment delivery the first year post-activity are less than 0.50 tons/acre/yr for commercial harvest and non-commercial prescribed fire proposed actions, and the probabilities (or percent chance) of predicted sediment delivery occurring the first year post-activity range from 13 to 97% (available in project record). WEPP predictions of sediment delivery reflect the influence of large storm events in WEPP simulations and results. These large events, while predicted to generate runoff volumes that could deliver sediment through an RHCA, are infrequent and have a low

probability of occurring; however, they are included in WEPP's calculation of average annual sediment delivery.

Sediment delivery less than 0.50 tons/acre/year is considered immeasurable and negligible (W. Elliott, USFS Rocky Mountain Research Station, personal communication September 7, 2018) (Elliot and Miller 2004, Covert et al. 2004). As average annual sediment delivery predictions from the proposed action are less than 0.50 tons/acre/yr, it can be concluded that potential sediment delivery from the proposed activities would be immeasurable, and therefore would have no to negligible effects on water resources.

The likely effects to water quality and water yield from a potential wildfire that could occur under current fuel loading conditions were estimated by combining FlamMap potential wildfire behavior modeling outputs for fire type and flame length, and classifying the combined outputs as unburned, low burn severity, moderate burn severity, and high burn severity, as presented in Table 3 and shown in Figure 2. WEPP predictions of average annual sediment delivery the first year post-potential wildfire using potential burn severities range from 1.0 to 6.2 tons/acre/yr with a 97 to 100% probability of predicted sediment delivery occurring the first year post-potential wildfire. Estimates of ECA increases from potential wildfire range from 51% to 54% for project area HUC 12 subwatersheds. A measure of 20-30% ECA is generally recognized as a warning of deleterious effects (Haupt, 1967; Gerhardt, 2000), and channel instability in response to increased water yield would be expected. The potential increase in both sediment yield and water yield could result in substantial degradation of fish habitat quality in response to increased upland erosion and sediment delivery to project area streams, and increased channel erosion and scour in response to increased water yield. Increased upland erosion and sediment delivery would be short-term (five years), as burned areas rapidly re-established ground cover that reduces erosion; however, effects to water yield could be long-term (greater than 10 years) as basal area and canopy cover re-establish with tree re-growth.

Table 3. FlamMap modeling outputs and potential wildfire burn severity classifications.

FlamMap Fire Type	FlamMap Flame Length Category (ft.)	Burn Severity Classification
Unburned	0-4	Unburned
Surface	4-8	Low
Passive Crown	4-8	Moderate
Active Crown	>4	High

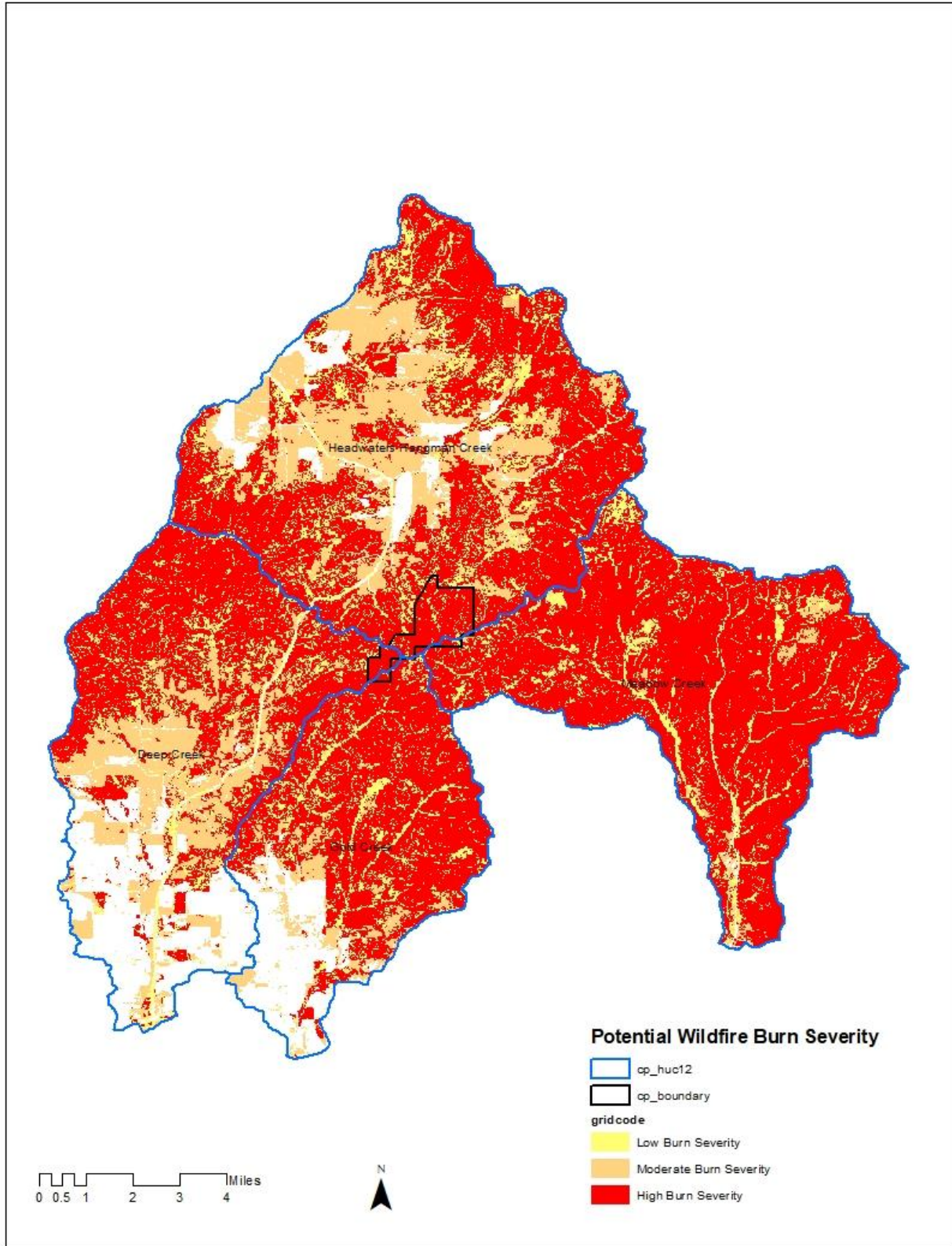


Figure 2. Potential wildfire burn severity in Crane Point project area HUC 12 subwatersheds.

Cumulative Effects

The proposed activities would have no to negligible direct or indirect effects on water resources, and therefore would not contribute to cumulative effects.

Regulatory Framework

The proposed action has been reviewed, and is determined to be in compliance with the management framework applicable to water resources. The laws, regulations, policies and Forest Plan direction applicable to this project and this resource are as follows:

All activities would be consistent with criteria for water resources found in the Clearwater National Forest Plan, Appendix K (USDA FS 1987), and all Federal and State laws and regulations applicable to watershed resources would be applied to the Crane Point project, including the Clean Water Act, Idaho State Water Quality Standards, Idaho Forest Practices Act, Idaho Stream Channel Protection Act, Executive Orders 11988 and 11990, and Soil and Water Conservation Practices (SWCP) Handbook, FSH 2509.22. The Crane Point project was designed to comply with these regulations, and all major streams in the project area would have improved or maintained water quality conditions, and would continue to support beneficial uses.

Executive Orders 11988 and 11990 regarding Floodplain and Wetland Management direct the Forest to “restore and preserve the natural and beneficial values served by floodplains” and to “minimize the destruction, loss or degradation of wetlands.” The Crane Point project does not propose to occupy floodplains, nor does it propose to modify or impact wetlands. As such, there would be no effects to floodplains or wetlands, thereby complying with EO 11988 and EO 11990.

Section 303 of the Clean Water Act requires federal agencies to comply with all federal, state, interstate, and local requirements; administrative authorities; and process and sanctions with respect to control and abatement of water pollution. Executive Order (EO) 12088 requires the Forest Service to meet the requirements of this Act. Therefore, all state and federal laws and regulations applicable to water quality would be applied, including 36 CFR 219.27; the Clean Water Act; the Clearwater Forest Plan, including INFISH Riparian Management Objectives (RMOs) and RHCAs; and Idaho State Best Management Practices (BMPs). To comply with Section 404 of the Clean Water Act, it may be necessary to obtain a permit from the Army Corps of Engineers to conduct culvert replacement during road improvement work, through application of either nationwide or site-specific permits. The Crane Point is consistent with Idaho Nonpoint Source Management Plan (IDEQ 1999).

The Idaho Forest Practices Act regulates forest practices on all land ownership in Idaho. Forest practices on NFS lands must adhere to the rules pertaining to water quality (IDAPA 20.02.01). The rules are also incorporated as BMPs in the Idaho Water Quality Standards. The project activities have been designed to be consistent with the Idaho Forest Practices Act.

Extraordinary Circumstances

Following are the resource conditions that should be considered in determining whether extraordinary circumstances related to a proposed action warrant further analysis and documentation in an EA or an EIS:

- 1) Federally listed threatened or endangered species or designated critical habitat, species proposed for Federal listing or proposed critical habitat, or Forest Service sensitive species;
- 2) Floodplains, wetlands, or municipal watersheds;
- 3) Congressionally designated areas, such as wilderness, wilderness study areas, or national recreation areas;

- 4) Inventoried roadless areas or potential wilderness areas;
- 5) Research natural areas;
- 6) American Indians and Alaska Native religious or cultural sites; and
- 7) Archaeological sites, or historic properties or areas.

The following conditions were necessary to consider for water resources, and the following determinations are made based on a review of the proposed action, required design features, the regulatory framework, and necessary analysis for water resources:

- **Flood plains, wetlands, or municipal watersheds**

Extraordinary Circumstances Determination:

Will not have extraordinary circumstances associated with the proposed actions.

Explain Determination

No municipal watersheds are located within or immediately downstream of the project area. Direct and indirect effects could occur on wetland areas and within stream floodplains during culvert replacement; however, best management practices would be implemented, and any effects would not be significant.

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